REMARKS

Claims 1-44 are pending. With this reply, claims 1-5, 7, 8, 11, 12, 15, 16, 20, 22-26, and 28-44 are amended; claims 6, 13, 14, 17-19, 21, and 27 are canceled; and new claims 45-47 are added. Reconsideration and further examination of the pending application are respectfully requested.

Change of Correspondence Address and New Power of Attorney

A new power of attorney and a change of correspondence address are filed concurrently with this reply. Please address all further correspondence to the following registered patent attorney at the following address:

David B. Kagan, Registration No. 33,406
Suite 200
221 Main Street North
Stillwater, MN 55082
Phone: 651-275-9804
Facsimile: 651-351-2954
E-mail: dkagan@kaganbinder.com

Customer Number 33072

Supplemental Information Disclosure Statement

A supplemental Information Disclosure Statement is filed concurrently herewith. The following patent documents are cited therein:

U.S. Pat. No. 6,477,227

U.S. Pat. No. 6,501,825

U.S. Pat. No. 6,432,715

Claim rejections under 35 USC 112, second paragraph

Claim 44 stands rejected under 35 USC 112, second paragraph, on grounds of being incomplete. Claim 44 has been amended to present the desired, claimed subject matter in proper independent claim format. It is respectfully submitted that the amendments to claim 44 overcome the rejection.

Claim rejections under 35 USC 102(b)

Claims 5, 20-23, 25, 38 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones (US 4,606,927). This rejection is traversed on grounds that Jones fails to provide any teaching, motivation, or suggestion as to taggant technology in which two kinds of coded information are incorporated into a single taggant particle, wherein at least one of the codes is provided by a reporter element that emits a spectral signature in response to interrogating energy. The present invention provides a number of advantages, including eliminating the false positive problem generally associated with using reporter elements in taggants according to conventional approaches.

The independent claims at issue now recite taggant technology in which at least one reporter element and an encoded particle are incorporated into the same taggant particle. The encoded particle comprises a sequence of colored layers. The at least one reporter element is entrained in at least one layer of the encoded particle. These constituents cause two independent codes to be incorporated into the same taggant particle. Thus, a spectral signature of a reporter element is associated with first code information, and the sequence of colored layers is associated with independent, second code information. In the practice of the present invention, the spectral signature of the reporter element not only signals the presence and location of the taggant particle, but it also further provides code content. As noted further below, the spectral signature of the reporter element can be used to authenticate the second code information and vice versa. The reporter element of the present invention serves multiple purposes, indeed.

In short, the single taggant particle of these claims at issue carries two distinct code systems, wherein at least one code system is associated with a constituent (the reporter element) that helps remotely signal the presence of the taggant when interrogated with an appropriate energy stimulus. Within the particle, the reporter element and the layered, encoded particle can be co-dispersed throughout the taggant particle. Alternatively, the reporter element may be integrated into one or more layers of the layered, encoded particle which may then serve as the taggant particle per se or optionally further incorporated into a larger particle structure.

The present invention in an elegantly simple way simultaneously solves at least five distinct technical problems that challenge the taggant industry. No document of record simultaneously solves all five of these technical challenges. More specifically:

Reading the code more accurately: Each taggant particle carries the entirety of two respective codes to be associated with the particle so that these codes can be detected from the particle itself without having to locate other particles or materials to complete the code. In the practice of the present invention, locate one taggant particle and the complete associated codes can be derived from that particle alone. This approach of the invention is contrasted to some other approaches in which an associated code is distributed among multiple particles. That conventional approach necessarily creates an ambiguity, as one can never be certain when one has detected the correct "representative" samples that are intended to provide code information.

Eliminating false positives: By using multiple codes in one particle, the presence of one code may be used to authenticate the other code(s). Quite significantly, this approach eliminates as a practical matter the false positive problem associated with using reporter elements as taggants. The false positive problem occurs because reporter element type materials naturally tend to be incorporated into many subjects to be tagged. When such subjects are interrogated with an energy stimulus intended to detect the desired reporter element, the naturally occurring ones may output a spectral response that, for instance, falsely indicates the presence of a taggant or otherwise corrupts the intended taggant signal with additional, spurious spectral information. Consequently, if one detects a fluorescent signature in a sample, how can one definitively determine if the detected signature is natural or a code? Advantageously, the multiple codes in a single particle can be used to self-authenticate detected information and thereby easily discern coded information from code noise created by natural materials.

Detecting the presence and location of taggants in a subject: Layered, encoded particles per se are effective taggants, but one must first locate such a taggant in order to read its code. When such encoded particles are widely distributed at a site, such as by an explosion, being able to quickly find the location of such a layered code would be desirable. According to preferred aspects of the claimed invention, locating the layered, encoded taggant particle is much easier because of the further presence of the reporter element.

Reporter elements allow an item to be quickly scanned to determine the presence and location, if present, of a taggant. Without a reporter element, locating a taggant becomes more labor and time intensive. While some art of record does use reporter elements for locating purposes, none do so in a multiple code context and none do so while also further solving all four additional technical problems discussed herein.

More efficient use of reporter elements: In a conventional approach, reporter elements are distributed throughout the bulk of a material. This requires relatively large amounts of reporter elements to tag bulk material effectively, but this is undesirable because reporter elements tend to be very expensive. When you use the particle approach as claimed, you don't have to disperse reporter elements throughout bulk to tag effectively since each individual particle carries entire codes. The reporter elements need only be distributed within the taggant particles themselves, and one needs relatively minor amounts of the taggant particles. Much less reporter element material is needed as a result.

Counterfeit protection: As a further advantage, mutually authenticating, multiple codes provide enhanced protection against counterfeits.

With this appreciation of the present invention, it is clear that the amended claims are patentable over Jones. Jones completely fails to provide any teaching, motivation, or suggestion to incorporate multiple, independent taggant codes in one taggant particle. There is absolutely nothing in Jones that even remotely appreciates that the claimed approach not only eliminates the false positive problem, but at the same time provides significant, multi-advantage advances in code detection accuracy, taggant locating, efficient use of reporter element materials, and enhanced protection against counterfeits. Because Jones fails to teach the multiple code approach, Jones necessarily fails to teach the claimed feature that at least one type of coded information is associated with reporter materials. The elegant simplicity of the claimed approach should not detract from the significant inventive steps taken by the present invention in solving at least five technical challenges simultaneously. Jones certainly cannot lay claim to such a distinction.

Withdrawal of the rejection is respectfully requested.

Claim rejections under 35 USC 103 over Jones and Schwarz

Claims 24, 26-37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US 4,606,927) and Schwartz et al. (US 4,767,205). This rejection is traversed in that the proposed combination of Jones with Schwarz is improper and fails to lead to the claimed taggant technology in which two kinds of coded information are incorporated into a single taggant particle, wherein at least one of the codes is provided by a reporter element that emits a spectral signature in response to interrogating energy.

Schwarz fails to cure the significant deficiencies of Jones discussed above. Schwarz distributes code information among several particles and thus one must attempt to uncover the right number, type, and amount of the particles in order to discern the correct code. There is absolutely nothing in Schwarz that notes this is problematic in terms of code accuracy, false positives, etc. Consequently, Schwarz fails to provide any teaching, motivation, or suggestion whatsoever to use multiple codes to overcome technical problems like this. Indeed, both Schwarz and Jones are completely silent as to any desire to incorporate multiple codes into single particles. Thus, there is no basis in either reference that would lead the skilled worker to use a fluorescent or similar type of material of Schwarz in the same taggant particle as that of Jones in the manner being claimed.

The Examiner states that it would be obvious to further incorporate fluorescent marking materials of Schwarz in the Jones layered particles because Schwarz teaches that fluorescents are a variant of color. This logic does not support the proposed combination. At most, such logic might suggest that one can merely substitute one kind of variant for the other in a single code system. You would still end up with a single code. Schwarz in no way suggests that the two codes should be used in combination to provide multiple, independent codes in the same particle. The shortcoming of the logic is highlighted by the fact that Schwarz specifically intends to distribute his code information among several particles.

The combination, therefore, is improper and the rejection of the claims over Schwarz and Jones should be withdrawn.

Even if the improper combination of Jones and Schwarz were to be made, the claims would still not be met. The claims require that a taggant particle incorporates at least two codes and that both codes can be fully detected from the one particle. Schwarz, however, distributes his code among several particles and distributing Schwarz materials among

several Jones particles does not lead to what is being claimed. On this additional basis, it is respectfully submitted that the proposed rejection is improper and should be withdrawn.

Claim rejections under 35 USC 103 over Jones, Schwarz, Stenzel, and Molee

Claims 1-4, 6-19, and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US 4,606,927), Schwartz et al. (US 4,767,205), Stenzel et al. (US 4,146,792), and Molee et al. (US 5,380,047). This rejection is traversed in that Stenzel and Molee fail to cure the significant deficiencies of Jones and Molee as noted above. Although it might be true that it is known that the spectral signature of a fluorescent marker can be used for authentication, neither Stenzel or Molee teach or suggest incorporating this kind of coding in combination with a second kind of coding into a single taggant particle in a manner that allows both codes to be fully detected and discerned from the one taggant particle. Neither of these documents even remotely recognizes the significant technical problems related to simultaneously overcoming challenges related to accurate detection of codes, eliminating false positives, detecting and locating taggants, using reporter elements more efficiently, and enhancing protection against counterfeits.

While some of these challenges might be addressed, an approach that addresses all five is not presented in any document of record. Only the claimed invention accomplishes such a feat.

It must be emphasized that the mere fact that it is technically feasible to incorporate two independent codes into one taggant particle once such an objective is known cannot per se provide the requisite teaching, motivation, or suggestion to make the combination. This teaching, suggestion, or motivation must come from the cited art, not from mere surmise by the Examiner that the combination is technically able to be made and certainly not from using applicants' claims as a roadmap to make the combination.

No such teaching, suggestion, or motivation is provided by any statement or content of the cited documents. Consequently, it is respectfully requested that the rejection be withdrawn.

CONCLUSION

In view of the above remarks, it is respectfully submitted that the claims and the present application are now in condition for allowance. Approval of the application and allowance of the claims is earnestly solicited. In the event that a phone conference between the Examiner and the Applicant's undersigned attorney would help resolve any remaining issues in the application, the Examiner is invited to contact said attorney at (651) 275-9804.

Respectfully Submitted,

By: David B. Kagan

David B. Kagan, Reg. No. 33,406
Customer Number 33072
Phone: 651-275-9804
Facsimile: 651-351-2954

Dated: November 2, 2004

DBK#14725